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GOOD IDEA LEAFLET 89

LIGHTING FOR THE HOME & GARDEN

Lighting has developed dramatically over the past few years and designs have moved from a simple pendant bulb and shade to become more of a fashion feature. Mood lighting has become the norm, not something just seen in glossy magazines. In the rush to redecorate or modernise, lighting is often overlooked as part of the room design process and is regularly left to the last minute. Lighting, given a little thought and used correctly, can add another dimension to a room. Planning at an early stage will give you a chance to add or move fittings before the final decoration takes place. A humble garden can be transformed into an all year round pleasure, whether through sight or the ability to use late into the evening. Through the use of various fittings and light sources, different moods can easily be created to suit an area or an occasion.

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Ideally, lighting should be part of the design stage and carefully considered. Different rooms require lighting in various ways; the amount of light needed will depend on the size of room, colouring and its function. The design of the fitting and type of light source will also have a bearing on the effect and quantity of light available. Lighting can be broken down into 3 key areas: 'Ambient', 'Task' and 'Accent', these can be used individually or in combination to create stunning results.

- Ambient light is the general light that will set the mood and tone of a space; this is usually the best place to start.
- Task lighting will focus light into a small area and assist you when working.
- Accent lighting will compliment or enhance a design feature or act as a feature itself.

There are 5 different types of lamp which are readily available and can assist with the above:

- Incandescent (i.e. 60W filament bulb or spot)
- Halogen (mains or low voltage)
- Fluorescent tube
- CFL (compact fluorescent)
- LED (light emitting diode)

Each type of lamp has its own characteristics so selecting the right type is important. Where different types or sizes of lamps can be used, make sure you don't exceed the manufacturer's stated maximum Wattage. Too much power could melt or burn a fitting. Always use the recommended type of lamp / bulb for a particular light fitting. The wrong lamp can spoil the desired effect, not provide enough light, damage the fitting or increase your energy bills but worst of all, it could ruin the overall design of the area you wish to light.

Modern environmental concerns and the rising cost of energy can play an important part in both these areas. More efficient, longer lasting lamps such as LED and CFL,

FIG. 1
LAMP EFFICIENCY AND ENERGY COSTS

Lamp Type	Wattage	Lumens Per Watt	Total Lumens	Average Lifetime Hours	Annual Energy Cost* (£)	Cost over 5 years* (£)	Cost for 3 bed house over 5 years (£)
Incandescent	60W	12-15	840	1,000	6.00	30.00	780.00
Halogen	50W	15-25	1,000	3,000	5.00	25.00	650.00
CFL	11W	60-80	770	8,000	1.10	5.50	143.00
Fluorescent Tube	10W	80-100	900	10,000	1.00	5.00	130.00
LED	5W	100-125**	625	45,000	0.30	1.50	39.00

A typical 3 bedroom house will have approximately 26 lightbulbs
*For ease of calculation, energy costs are approximate and are calculated at 10p per kWh. Shown amounts do not include the cost of replacement bulbs / lamps
** LED lamps are still developing and these figures are changing constantly.
Usage is based on 3 hours per day – 1,000hrs approx. 1 year usage

result in less power consumed, fewer lamps thrown away, without compromising brightness. These modern light sources are comparable or better than conventional and even halogen equivalents. **FIG. 1** shows the power consumption, average life, brightness and typical running cost.

NOTE: This table gives an approximate comparison against a conventional GLS 60W light bulb. We have calculated the cost of electricity at 10p per kWh as this keeps the sum simple. To check your own running cost, divide by 10 and multiply by the amount you pay for electricity.

REGULATIONS

There maybe occasions where your lighting installation must meet Building Regulations, we advise that you check with your Local Building Authority before commencing any work in order to ensure you meet these. For example you may be having a new kitchen installed, this could mean that you have to meet Part B (Fire Safety), Part L (Conservation of Fuel and Energy) & Part P (Electrical Safety) of the Building Regulations. Understanding this at the planning stage could save you time and money, ensuring you have a safe and efficient installation.

NOTE: To comply with Part L of the Building Regulations a light fitting has to have a dedicated low energy light source (Part L compliant) and as such, it is a good idea to make a note of the type of lamp cap and have this readily to hand when asked.

All electrical work must conform to BS 7671 the current IEE Wiring Regulations and Part P of Building Regulations. You are advised to check with your Local Authority's Building Control Department, or an Authorised Competent Person, before starting. If in any doubt about electrical work, consult a qualified electrician.

NOTE: Part P allows small jobs such as the addition of lights, switches or sockets to an existing circuit. These will not need to be notified to Building Control unless they are in an area of high risk, such as kitchens and bathrooms (or 'special locations' which you will find on the Internet or from your Local Building Control Department).

Part B (Fire Safety): If the integrity of the fire barrier i.e. a ceiling, is compromised by the installation of a light fitting, such as a recessed downlight, and there is a living space on the floor directly above, the fire barrier must be maintained.

This can be achieved by either using a fire rated light fitting which reacts in the event of a fire to seal the break in the fire barrier or by using a fire hood in conjunction with a standard light fitting. The fire hood is normally placed on the rear of the fitting in the cavity void.

NOTE: These products are available at Wickes.

BEFORE YOU START

Before installing your lighting it is important to ensure that your mains supply is properly disconnected at the main circuit board and cannot be switched on, whilst work is being undertaken. Also check and ensure that the circuit is appropriate for the installation as some installations require 30mA protection.

Ceilings (and some walls) from the early 1950s through to the early 1970s may have an Artex covering containing asbestos so great care should be taken if disturbing the surface. If in any doubt, seek professional advice.

Most bulbs, fittings and transformers can become very hot during use. Make sure they are not too close to a combustible surface. Never use a more powerful bulb than recomended. Don't cover fittings, lights and cables with any form of insulation material. Most supplied instructions will advise on distances and maximum bulb power but in the unlikely event that they don't, contact the manufacturer before installation.

Always read, understand and follow instructions supplied with the fitting before attempting any work.

Useful tools include: Insulated terminal screwdriver, wire cutters / strippers, circuit / mains tester, hole cutter / pad saw, drill and suitable fixings.

HOME LIGHTING

- Think about the room you wish to light: What is it used for, how often is it used and what mood you would like to create. Does it have more than one function and what are the ages of the people using the room?
- Think about what you want to light. Are there any special features such as: Pictures, plants, architecture, furniture, ornaments or even entrances & exits.
- Do you want to light upwards, downwards, wall washing or crosslight?
- Do you wish to add colour?

The possibilities are endless.

FIG. 2

LAMP COVERAGE BY TYPE (assuming a 2.4m ceiling high)

Lamp Type	Wattage	Lumens Per Watt	Total Lumens	Area Covered M²
Incandescent	25W	12-15	420	1
Halogen	15W	15-25	500	1
CFL	6.1W	60-80	428	1
Fluorescent Tube	5W	80-100	450	1
LED	3W	100-150**	375	1

Values are for an average living room. You may require more light in bathrooms, kitchens and hobby areas.
** LED lamps are improving all the time and as such, these figures are liable to change.
* Area coverage is approximate and indication only. Fittings may alter amount of light and spread.

It is important to select the correct lights / lighting to achieve the effect(s) you want. You don't have to have just one type of lighting, you can have several. Each type can be switched independently, used singularly or as combinations to suit your needs or mood.

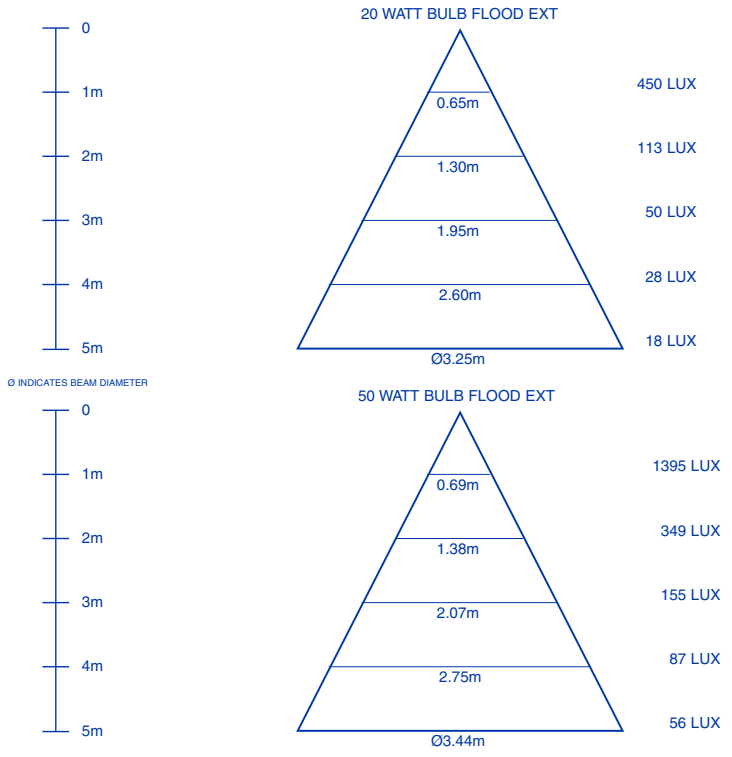
If you just wish to light the room, an ambient light maybe sufficient. If you intend to carry out tasks such as reading or cooking, you may also require task lighting. If there is a feature you wish to highlight, such as a picture or ornaments, then accent lighting will be required.

Larger areas will probably require more that one fitting, a fitting with multiple lamps, or a fitting that has brighter lamps **FIG. 2** shows the amount of light in watts & lumens required to light 1m² and **FIG. 3** shows the typical output for a halogen lamp and the area covered.

All lights and light sources should be positioned so that you are not looking directly at them and don't produce glare. Think about where people will sit or stand, will there be a TV in the room. Is this somewhere you eat, entertain, cook, dress, wash or sleep?

Your electrician maybe able to advise the most suitable location for the fitting. There may also be additional work to carry out as a result of your design. You may want to dim the light to change the mood; this will require a light fitting and lamp that is suitable for dimming, and dimmer switch.

FIG. 3



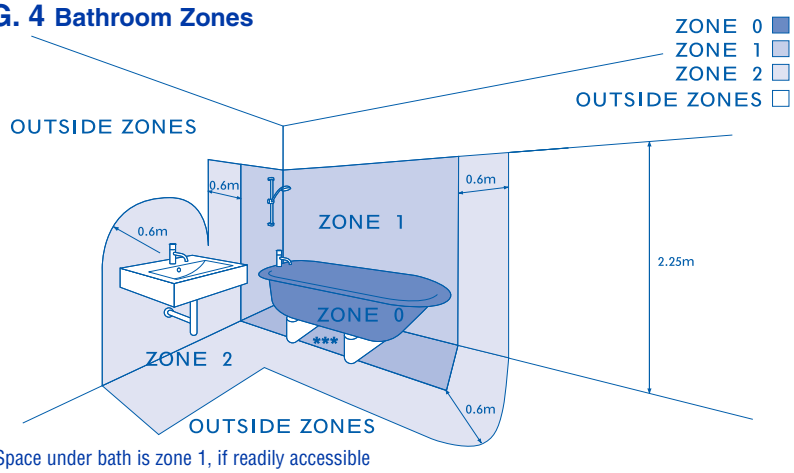
LIGHTING DESIGN IDEAS BY ROOM

HALL & STAIRS: This is normally the first area a visitor will see and first impressions are important. This area should feel welcoming and warm but provide a good level of light. Ambient light is the choice here and a fitting that diffuses the light, located centrally is ideal. There maybe pictures that you wish to make a feature, so a clean crisp light is required. Accent lighting is perfect for this and we recommend either a picture light, spotlight or cable system, to give the best results. Stairs could be fitted with LEDs, which are very discreet and softer on the eyes, especially at night.

LIVING ROOM: This is a multi purpose area for family and friends and good lighting can really enhance the room's design. Factors to take into consideration when deciding on lighting here, are the activities that maybe undertaken in the room and any features that you may wish to highlight. Adding layers of light can produce stunning results whilst remaining functional and easy on the eye. A central decorative fitting such as chandelier or multi-armed pendant are generally the feature of choice. They come in a variety of designs and finishes, from classic and traditional to modern and contemporary. For a clean modern look, recessed downlights can be used and there are a variety to choose from. Downlights can also be used in recessed areas to create a feature. Floor lamps will create a wash of light in corners and assist in reading tasks. Table lamps and wall lights can be used to create a soft diffused light whilst watching television.

KITCHEN: There have been significant

FIG. 4 Bathroom Zones



***Space under bath is zone 1, if readily accessible
N.B: The above diagram is only a guide and not to scale.
Please refer to I.E.E. Wiring Regulations (BS 7671 : 2008).

changes in light fittings designed specifically for the kitchen. Until recent years, kitchen lighting consisted of a fluorescent tube on the ceiling and strip lighting under the cabinets. Now there is a variety of fittings available, which have been designed around kitchen furniture; such as plinth lighting, pellet lighting and under cabinet lights. Kitchens often require bright focused lighting due to the activities undertaken and so task oriented lights are usually the best choice. Spotlights, recessed downlights or the traditional fluorescent tube are best for the general light as their light is bright and clear (some recessed downlights can be directed if required). For under cabinet lighting there are a variety of fittings, often low voltage halogen that give a good focused light for tasks such as chopping but these are now being replaced by LED.

BATHROOM: Bathrooms have become a great place to relax and enjoy. With modern fittings and new styles, this rooms lighting demands extra thought. Get this right and the room where you start and end your day will be a pure pleasure.
A bathroom has strict Regulations regarding the type of light fitting used and where it can be fitted. When choosing fittings for a bathroom, always consult an electrician, as installations must conform to the latest Wiring Regulations. These Regulations are not to make things difficult for the installer or the end user but to protect everyone. Water and electricity are a dangerous combination and as such, the last thing anyone wants is for you, or your family to be in any danger.

For task oriented lighting, a good bright focused light located near a mirror is best. General or ambient light in a bathroom is either a centrally located flush light or a series of recessed downlights. If you have a shower then a suitably protected, recessed downlighting is ideal.

Bathrooms are divided into 4 zones 0, 1, 2 & Outside. There are restrictions on what fittings can be placed into which zone and as such, all Wickes bathroom light fittings that are designed to meet or exceed IP44 rating, allowing them to be installed into zones 1,2 or outside – these must be protected by RCD operating at 30mA, see **FIG 4.**
NOTE: Any light fitting used inside Zone 0 (inside the bath or shower itself). Must be low voltage, (max 12V) and rated IP67 or above. The first number of an IP rating, (0-6), is the degree protection against debris, dust and even 'little fingers' getting in. The second number (0-8) is its resistance to moisture. IP68 is the highest degree of protection offered against dust, solid objects & moisture.

BEDROOM: Often used as a place of sanctuary, it is important to get the right balance of light. A central fitting that can be dimmed to give a soft light that will set the mood and when required, give a bright functional light. Wardrobes can be fixed with accent lighting, adding an extra dimension. Using wall lights or table lamps can provide a softer diffused for reading.

NOTE: When selecting a light fitting for any room, always try and chose the most energy efficient fitting you can as this will save you money in the long run. See table **FIG.1**. for typical savings.

After taking all the above into consideration, select your light fitting(s).

HINTS & TIPS

- Do not place lights in a position where the area you want to light is going to be obscured by your own shadow. Place light directly above rather than from behind.
- Dimmers can alter the effects dramatically and can now be controlled remotely. Always check that the fitting and lamp are suitable for use with a dimmer.
- Always allow enough time for the lamp to cool before replacing.
- In dark coloured rooms you will need more light, as the reflected light is diminished.
- To change the effect in a room, think about switching lights independently.
- When cleaning the lights never use any chemicals or abrasive cleaners. Switch off the lights and allow them to cool and then wipe with a damp cloth and buff with a clean dry cloth.

LOCATING LIGHTS, TRANSFORMERS

Whichever type of fitting you intend to use, draw a scale floor plan of the room, clearly mark where items are and where you wish relevant lights to be. When you have completed your plan, mark the ceiling / wall with the centre position of the fitting, making sure you mark the position of cut-outs, before cutting or drilling, ensuring there are no obstructions, cable or pipes behind. Fitting lights on the ground floor may require you to have access to the floor above so ensure floorboards can be accessed.

If installing recessed down lights ensure there is enough clearance in the ceiling void, you will find minimum distances stated in the supplied instructions. Ensure the integrity of any fire barrier is maintained especially where there is a dwelling above the site of the fitting(s).

FIG. 5 & 6 show typical switched wiring circuits for a lighting installation, alternatively you can use the existing 230V supply from the loop-in terminals of a ceiling rose supplying existing 230V lighting. Always read the light fittings instructions before attempting any work and

FIG. 5

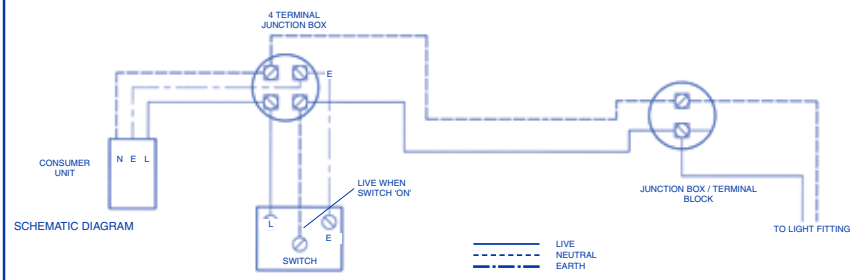
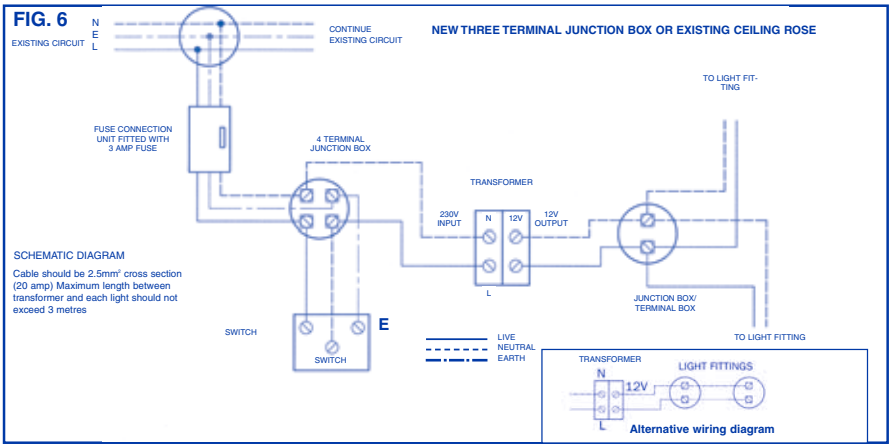


FIG. 6



if in doubt, consult a qualified electrician. Lighting circuits are usually controlled from a 5amp fuse at the main board and most new installations require this to be protected by an RCD operating at 30mA. In a two-storey house there are usually two lighting circuits, one for each floor.

Using the above information, you should now be able to calculate the amount of cable and where any switches should go. **NOTE:** always allow extra cable as it is easier to trim back than to add. This will also give you some flexibility if you have to adjust the positioning of a fitting.

FITTING LIGHTS AND ELECTRICAL CONNECTIONS

Installing a light fitting is straightforward but at this stage don't fit lamps into their housings. Once all the cabling is in place you can then fix any brackets using suitable fixings (taking care not to drill or screw through any cables). Ensure all terminations are secure and comply with the Wiring Regulations that your light fitting complies with BS EN 60598, the British Standard for light fittings.

NOTE: Fittings classed as Double Insulated (Class II) or SELV (Class III) do not require an earth and fitting instructions should be followed.
TIP: When using multiple lamp fittings, or when low voltage fittings are supplied via a transformer, a bulb / lamp reaches the end of its life; it is good practice, to replace as soon as possible. Failure to do so may cause 'overvolting' of the other bulbs / lamps and could reduce their lifespan by up to 50%. Always ensure that the bulbs / lamps are sufficiently cool before replacing.

GARDEN LIGHTING

A garden is a stage; the plants, features and trees are its players. There is much written about the subject but no hard and fast rules about lighting design. A good effect does not happen by chance, it requires thought and planning, sometimes, a little trial and error. You are the director and this is your show.
Once you have finalised your garden design, it is important you do not overlook the lighting, this will allow you to extend the day and spend more time in the garden. Good lighting will add new dimensions to your outdoor living space.

You can find all sorts of good design ideas and inspiration from magazines, shows, television and even from some of the better local parks or open spaces. Some of the best sources of inspiration are the gardens of pubs and hotels, many of these are quite brilliant but remember, simple is best and that underlighting is often better than too much but, that said, your lighting is a personal choice.

You don't just need to have one set of lights; you can have several to suit your mood, the time of evening or year, even where you wish to sit that evening. Maybe you wish to alter the intensity of the light as the evening progresses? After all, you have more than one type of lighting in your living room, so why not take this concept outside?

WHERE TO START

- Think about what you want to light: Are there any special features: Pathways, seating area's, plants, trees, porches, patios, decking or the BBQ? What about: Architecture, ponds, ornaments or even entrances & exits.
- What kind of effect or mood do you want to create: Accent, step, silhouetting, moonlighting, spreading, flooding?
- Do you want to light upwards, downwards, wall washing or crosslight?
- Do you wish to add colour?

The possibilities are endless.

It is important to select the right lights / lighting to achieve the effect that you want but more importantly, your lighting will function safely.

All lights and light sources need to be positioned so that you are not looking directly at them.

Think about where people will stand or sit and try to avoid glare. Also consider your neighbours, they may not appreciate you illuminating their rooms with your lights.

Wickes offer a wide range of outdoor lighting fittings and accessories for all applications of a design, In-Store or online at www.wickes.co.uk

Consider the type and amount of light you want or need; for a bright focused beam, halogen lamps are ideal. For energy

efficient lighting, compact fluorescents are perfect if leaving on for long periods of time and for accent lighting, LEDs are becoming a popular choice.

For extra functionality, adding a passive infa-red (PIR) or motion sensor allowing fittings to illuminate automatically on detection of motion, some fittings offered by Wickes Building Supplies have PIR sensors built in and are generally used for security applications. Think about where the PIR sensor will point, as you don't want it to light every time a car or someone on a far footpath goes by. This is not only annoying but it becomes very expensive, especially with higher-powered lights.

Select only fittings that are suitable for outdoor use have been tested in accordance with the European Standard for luminaries (BS EN 60598) and carry a CE mark. Depending on where the light fitting is to be sited will determine the degree of protection the product will need against ingress of moisture. This is known as an IP rating i.e. IP44. Simply put, the first number of an IP rating (0-6) is the degree of protection against debris, dust and even 'little fingers' getting in. The second number (0-8) is its resistance to moisture. IP68 is the highest degree of protection offered against dust, solid objects & moisture.

All fittings Wickes sell for exterior use will be rated at a minimum of IP44 (rainproof) or above. If an application requires recessing into the ground / decking or a pond / water feature, then a rating of IP67 is required (this will work to a depth of one metre).

Outdoor light fittings will require some maintenance, so choose one made from a material suitable for the local environmental conditions i.e. if you live near to the sea, select a plastic or marine grade stainless steel product that will require minimal cleaning and is not prone to corrosion. Always check manufacturer's care instructions.

Having decided, what, where, how you wish to light and how many different moods you want to create, make a plan of your garden, identifying lengths, quantities of materials and accessories required. These may include switches, P.I.R. sensors, conduit, armoured cable (above 50V), an RCD, fixings, weatherproof junctions boxes, cable joints, glands etc.

NOTE: Outdoor Fittings operating under 50V can use conduit to protect the cable. Fittings operating above 50V must use armoured cable and be protected by a RCD, with a residual operating current not exceeding 30mA.

Once you have selected your fittings and accessories, using your plan, physically mark out the areas in your garden where the lighting is to be sited and the cable is to be run. Prepare the ground for the cables by digging channels - for cables operating at above 50V or where the ground is likely to be disturbed, the trench must be at least 500mm deep.

The cable route should be marked with yellow and black tape. It should be just 150mm below the surface, above buried cable; this is to warn persons excavating the ground in the future that a cable is present. It is also a good idea to keep a garden plan showing all cable routes and depths for future reference.

NOTE: When laying cable, always leave an extra length for any last minute adjustments; it is easier to reduce the length than it is to add. Don't back fill until you have completed, tested and are happy with the positioning of the system.

When installing recessed ground lighting in a drive or pathway, you should provide suitable drainage; bedding the base of the fitting onto gravel can easily do this.

Once all the cabling is in place and you are happy with the location of the fittings, make sure the securing method is suitable for the size and weight of the fitting, the surface to which it is to be fixed and its exposure to the elements. When all this is done, connect the supply cable, re-check all connections and fit bulbs / lights. Only when you are happy with the installation and it has been checked, can an 'Authorised Competent Person' connect the mains power supply. Switch on and test. Back fill any trenches and make good.

Even the best garden lighting designers don't always get it right first time. If this happens to you, it may just be a case of a little adjustment or even some trial and error but it's worth persevering. You can easily add a new circuit or more lights if necessary.

NOTE: Always keep your garden lighting plans for future reference.

All outdoor electrical work must conform to BS 7671 the current IEE wiring regulations, and Part P of Building Regulations, you are advised to check with your local authorities Building Control Department, or an Authorised Competent Person, before starting. If in any doubt about electrical work, contact a qualified person.